

August 09, 2016

Smita Sumbaly
Weston Solutions, Inc
1090 King Georges Post Road
Edison, NJ 08837

RE: Project: 393
Pace Project No.: 30189561

Dear Smita Sumbaly:

Enclosed are the analytical results for sample(s) received by the laboratory on July 13, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Carin Ferris
carin.ferris@pacelabs.com
Project Manager

Enclosures

cc: Ben Nwosu, Weston Solutions, Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 393
Pace Project No.: 30189561

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5

USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

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SAMPLE SUMMARY

Project: 393
Pace Project No.: 30189561

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30189561001	N002-BKF001-01	Solid	07/11/16 09:00	07/13/16 10:40
30189561002	N002-BKF002-01	Solid	07/12/16 13:46	07/13/16 10:40
30189561003	N002-CC001-01	Solid	07/10/16 14:00	07/13/16 10:40
30189561004	N002-CC002-01	Solid	07/10/16 11:00	07/13/16 10:40
30189561005	N002-CC002-02	Solid	07/10/16 11:05	07/13/16 10:40
30189561006	RB-N-160710	Water	07/10/16 15:00	07/13/16 10:40

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SAMPLE ANALYTE COUNT

Project: 393
Pace Project No.: 30189561

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30189561001	N002-BKF001-01	EPA 901.1	MAH	11
		HSL-300	LAL	6
30189561002	N002-BKF002-01	EPA 901.1	MAH	9
		HSL-300	LAL	6
30189561003	N002-CC001-01	EPA 901.1	MAH	9
		HSL-300	LAL	6
30189561004	N002-CC002-01	EPA 901.1	MAH	9
		HSL-300	LAL	6
30189561005	N002-CC002-02	EPA 901.1	MAH	9
		HSL-300	LAL	6
30189561006	RB-N-160710	EPA 903.1	WRR	1
		EPA 904.0	JLW	1
		HSL-300	LAL	6

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 393
Pace Project No.: 30189561

Method: EPA 901.1
Description: 901.1 Gamma Spec INGROWTH
Client: Weston Solutions, Inc. (NJ)
Date: August 09, 2016

General Information:

5 samples were analyzed for EPA 901.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 901.1 with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 393
Pace Project No.: 30189561

Method: EPA 903.1
Description: 903.1 Radium 226
Client: Weston Solutions, Inc. (NJ)
Date: August 09, 2016

General Information:

1 sample was analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 393
Pace Project No.: 30189561

Method: EPA 904.0
Description: 904.0 Radium 228
Client: Weston Solutions, Inc. (NJ)
Date: August 09, 2016

General Information:

1 sample was analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 393
Pace Project No.: 30189561

Method: HSL-300
Description: HSL300(AS) Actinides
Client: Weston Solutions, Inc. (NJ)
Date: August 09, 2016

General Information:

5 samples were analyzed for HSL-300. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 226882

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1111723)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- N002-BKF001-01 (Lab ID: 30189561001)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- N002-BKF002-01 (Lab ID: 30189561002)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- N002-CC001-01 (Lab ID: 30189561003)
 - Thorium-228
 - Thorium-230

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PROJECT NARRATIVE

Project: 393
Pace Project No.: 30189561

Method: HSL-300
Description: HSL300(AS) Actinides
Client: Weston Solutions, Inc. (NJ)
Date: August 09, 2016

Analyte Comments:

QC Batch: 226882

N2: The lab does not hold TNI accreditation for this parameter.

- N002-CC001-01 (Lab ID: 30189561003)
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- N002-CC002-01 (Lab ID: 30189561004)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- N002-CC002-02 (Lab ID: 30189561005)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236

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PROJECT NARRATIVE

Project: 393
Pace Project No.: 30189561

Method: HSL-300
Description: HSL300(AS) Actinides
Client: Weston Solutions, Inc. (NJ)
Date: August 09, 2016

General Information:

1 sample was analyzed for HSL-300. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 227833

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1116097)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236
- RB-N-160710 (Lab ID: 30189561006)
 - Thorium-228
 - Thorium-230
 - Thorium-232
 - U-233/234
 - Uranium-238
 - U-235/236

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 393
Pace Project No.: 30189561

Sample: N002-BKF001-01 Lab ID: 30189561001 Collected: 07/11/16 09:00 Received: 07/13/16 10:40 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Comments: • Sample collection times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Bismuth-212	EPA 901.1	0.29898U ± 0.841 (1.067) C:NA T:NA	pCi/g	08/09/16 10:15	14913-49-6	
Bismuth-214	EPA 901.1	0.366 ± 0.139 (0.100) C:NA T:NA	pCi/g	08/09/16 10:15	14733-03-0	
Lead-210	EPA 901.1	1.0909J ± 1.317 (1.678) C:NA T:NA	pCi/g	08/09/16 10:15	14255-04-0	
Lead-212	EPA 901.1	0.079396J ± 0.084 (0.105) C:NA T:NA	pCi/g	08/09/16 10:15	15092-94-1	
Lead-214	EPA 901.1	0.506 ± 0.160 (0.115) C:NA T:NA	pCi/g	08/09/16 10:15	15067-28-4	
Potassium-40	EPA 901.1	0.61331J ± 0.596 (0.856) C:NA T:NA	pCi/g	08/09/16 10:15	13966-00-2	
Radium-226	EPA 901.1	0.406 ± 0.125 (0.100) C:NA T:NA	pCi/g	08/09/16 10:15	13982-63-3	
Radium-228	EPA 901.1	0.059314U ± 0.085 (0.324) C:NA T:NA	pCi/g	08/09/16 10:15	15262-20-1	
Thallium-208	EPA 901.1	0.030704J ± 0.033 (0.076) C:NA T:NA	pCi/g	08/09/16 10:15	14913-50-9	
Thorium-234	EPA 901.1	0.33451U ± 0.597 (1.419) C:NA T:NA	pCi/g	08/09/16 10:15	15065-10-8	
Uranium-235	EPA 901.1	0.116 ± 0.071 (0.077) C:NA T:NA	pCi/g	08/09/16 10:15	15117-96-1	
Thorium-228	HSL-300	0.099 ± 0.093 (0.148) C:NA T:85%	pCi/g	07/28/16 08:00	14274-82-9	N2
Thorium-230	HSL-300	0.297 ± 0.140 (0.093) C:NA T:85%	pCi/g	07/28/16 08:00	14269-63-7	N2
Thorium-232	HSL-300	0.089 ± 0.075 (0.077) C:NA T:85%	pCi/g	07/28/16 08:00	7440-29-1	N2
U-233/234	HSL-300	0.513 ± 0.203 (0.151) C:NA T:104%	pCi/g	07/27/16 15:42		N2
U-235/236	HSL-300	0.022 ± 0.078 (0.058) C:NA T:104%	pCi/g	07/27/16 15:42		N2
Uranium-238	HSL-300	0.396 ± 0.170 (0.045) C:NA T:104%	pCi/g	07/27/16 15:42		N2

Sample: N002-BKF002-01 Lab ID: 30189561002 Collected: 07/12/16 13:46 Received: 07/13/16 10:40 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Comments: • Sample collection times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Bismuth-212	EPA 901.1	0U ± 0.224 (1.348) C:NA T:NA	pCi/g	08/09/16 10:32	14913-49-6	
Lead-210	EPA 901.1	0.40607U ± 1.727 (2.333) C:NA T:NA	pCi/g	08/09/16 10:32	14255-04-0	
Lead-212	EPA 901.1	0.11621J ± 0.123 (0.146) C:NA T:NA	pCi/g	08/09/16 10:32	15092-94-1	
Potassium-40	EPA 901.1	1.504 ± 1.235 (1.274) C:NA T:NA	pCi/g	08/09/16 10:32	13966-00-2	
Radium-226	EPA 901.1	0.689 ± 0.160 (0.100) C:NA T:NA	pCi/g	08/09/16 10:32	13982-63-3	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 393
Pace Project No.: 30189561

Sample: N002-BKF002-01 Lab ID: 30189561002 Collected: 07/12/16 13:46 Received: 07/13/16 10:40 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Comments: • Sample collection times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 901.1	0.203 ± 0.133 (0.197) C:NA T:NA	pCi/g	08/09/16 10:32	15262-20-1	
Thallium-208	EPA 901.1	0.031289J ± 0.033 (0.092) C:NA T:NA	pCi/g	08/09/16 10:32	14913-50-9	
Thorium-234	EPA 901.1	0.35913U ± 0.615 (1.577) C:NA T:NA	pCi/g	08/09/16 10:32	15065-10-8	
Uranium-235	EPA 901.1	0.106 ± 0.098 (0.093) C:NA T:NA	pCi/g	08/09/16 10:32	15117-96-1	
Thorium-228	HSL-300	0.253 ± 0.137 (0.178) C:NA T:89%	pCi/g	07/28/16 08:00	14274-82-9	N2
Thorium-230	HSL-300	0.712 ± 0.218 (0.083) C:NA T:89%	pCi/g	07/28/16 08:00	14269-63-7	N2
Thorium-232	HSL-300	0.310 ± 0.132 (0.065) C:NA T:89%	pCi/g	07/28/16 08:00	7440-29-1	N2
U-233/234	HSL-300	0.687 ± 0.247 (0.208) C:NA T:87%	pCi/g	07/27/16 15:43		N2
U-235/236	HSL-300	0.081 ± 0.086 (0.108) C:NA T:87%	pCi/g	07/27/16 15:43		N2
Uranium-238	HSL-300	0.793 ± 0.259 (0.120) C:NA T:87%	pCi/g	07/27/16 15:43		N2

Sample: N002-CC001-01 Lab ID: 30189561003 Collected: 07/10/16 14:00 Received: 07/13/16 10:40 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Comments: • Sample collection times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Bismuth-212	EPA 901.1	0U ± 0.638 (1.844) C:NA T:NA	pCi/g	08/09/16 10:49	14913-49-6	
Lead-210	EPA 901.1	-4.0118U ± 14.319 (18.050) C:NA T:NA	pCi/g	08/09/16 10:49	14255-04-0	
Lead-212	EPA 901.1	0.593 ± 0.152 (0.129) C:NA T:NA	pCi/g	08/09/16 10:49	15092-94-1	
Potassium-40	EPA 901.1	8.581 ± 1.792 (0.674) C:NA T:NA	pCi/g	08/09/16 10:49	13966-00-2	
Radium-226	EPA 901.1	0.588 ± 0.146 (0.132) C:NA T:NA	pCi/g	08/09/16 10:49	13982-63-3	
Radium-228	EPA 901.1	0.443 ± 0.273 (0.315) C:NA T:NA	pCi/g	08/09/16 10:49	15262-20-1	
Thallium-208	EPA 901.1	0.166 ± 0.070 (0.051) C:NA T:NA	pCi/g	08/09/16 10:49	14913-50-9	
Thorium-234	EPA 901.1	1.3609J ± 2.381 (2.972) C:NA T:NA	pCi/g	08/09/16 10:49	15065-10-8	
Uranium-235	EPA 901.1	0.032751U ± 0.106 (0.132) C:NA T:NA	pCi/g	08/09/16 10:49	15117-96-1	
Thorium-228	HSL-300	0.558 ± 0.210 (0.206) C:NA T:91%	pCi/g	07/28/16 08:00	14274-82-9	N2
Thorium-230	HSL-300	0.439 ± 0.172 (0.122) C:NA T:91%	pCi/g	07/28/16 08:00	14269-63-7	N2
Thorium-232	HSL-300	0.274 ± 0.128 (0.037) C:NA T:91%	pCi/g	07/28/16 08:00	7440-29-1	N2

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 393
Pace Project No.: 30189561

Sample: N002-CC001-01 **Lab ID: 30189561003** Collected: 07/10/16 14:00 Received: 07/13/16 10:40 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Comments: • Sample collection times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
U-233/234	HSL-300	0.556 ± 0.235 (0.191) C:NA T:77%	pCi/g	07/27/16 09:34		N2
U-235/236	HSL-300	0.052 ± 0.096 (0.132) C:NA T:77%	pCi/g	07/27/16 09:34		N2
Uranium-238	HSL-300	0.336 ± 0.173 (0.121) C:NA T:77%	pCi/g	07/27/16 09:34		N2

Sample: N002-CC002-01 **Lab ID: 30189561004** Collected: 07/10/16 11:00 Received: 07/13/16 10:40 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Comments: • Sample collection times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Bismuth-212	EPA 901.1	0.80613J ± 1.123 (1.799) C:NA T:NA	pCi/g	08/09/16 10:50	14913-49-6	
Lead-210	EPA 901.1	1.3329J ± 1.971 (2.557) C:NA T:NA	pCi/g	08/09/16 10:50	14255-04-0	
Lead-212	EPA 901.1	0.492 ± 0.173 (0.196) C:NA T:NA	pCi/g	08/09/16 10:50	15092-94-1	
Potassium-40	EPA 901.1	8.570 ± 2.259 (1.134) C:NA T:NA	pCi/g	08/09/16 10:50	13966-00-2	
Radium-226	EPA 901.1	0.670 ± 0.184 (0.216) C:NA T:NA	pCi/g	08/09/16 10:50	13982-63-3	
Radium-228	EPA 901.1	0.37725J ± 0.248 (0.539) C:NA T:NA	pCi/g	08/09/16 10:50	15262-20-1	
Thallium-208	EPA 901.1	0.139 ± 0.112 (0.123) C:NA T:NA	pCi/g	08/09/16 10:50	14913-50-9	
Thorium-234	EPA 901.1	1.2016J ± 1.434 (1.938) C:NA T:NA	pCi/g	08/09/16 10:50	15065-10-8	
Uranium-235	EPA 901.1	0.05696J ± 0.103 (0.134) C:NA T:NA	pCi/g	08/09/16 10:50	15117-96-1	
Thorium-228	HSL-300	0.445 ± 0.174 (0.109) C:NA T:87%	pCi/g	07/28/16 08:00	14274-82-9	N2
Thorium-230	HSL-300	0.372 ± 0.168 (0.183) C:NA T:87%	pCi/g	07/28/16 08:00	14269-63-7	N2
Thorium-232	HSL-300	0.303 ± 0.136 (0.053) C:NA T:87%	pCi/g	07/28/16 08:00	7440-29-1	N2
U-233/234	HSL-300	0.510 ± 0.214 (0.148) C:NA T:84%	pCi/g	07/27/16 15:43		N2
U-235/236	HSL-300	0.013 ± 0.089 (0.147) C:NA T:84%	pCi/g	07/27/16 15:43		N2
Uranium-238	HSL-300	0.471 ± 0.201 (0.095) C:NA T:84%	pCi/g	07/27/16 15:43		N2

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 393
Pace Project No.: 30189561

Sample: N002-CC002-02 **Lab ID:** 30189561005 **Collected:** 07/10/16 11:05 **Received:** 07/13/16 10:40 **Matrix:** Solid
PWS: **Site ID:** **Sample Type:**

Results reported on a "dry-weight" basis

Comments: • Sample collection times were not present on the sample containers.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Bismuth-212	EPA 901.1	0.8899J ± 0.805 (2.105) C:NA T:NA	pCi/g	08/09/16 11:08	14913-49-6	
Lead-210	EPA 901.1	0U ± 1.981 (4.530) C:NA T:NA	pCi/g	08/09/16 11:08	14255-04-0	
Lead-212	EPA 901.1	0.427 ± 0.151 (0.144) C:NA T:NA	pCi/g	08/09/16 11:08	15092-94-1	
Potassium-40	EPA 901.1	8.453 ± 2.391 (1.327) C:NA T:NA	pCi/g	08/09/16 11:08	13966-00-2	
Radium-226	EPA 901.1	0.763 ± 0.209 (0.155) C:NA T:NA	pCi/g	08/09/16 11:08	13982-63-3	
Radium-228	EPA 901.1	0.49627J ± 0.313 (0.502) C:NA T:NA	pCi/g	08/09/16 11:08	15262-20-1	
Thallium-208	EPA 901.1	0.185 ± 0.090 (0.083) C:NA T:NA	pCi/g	08/09/16 11:08	14913-50-9	
Thorium-234	EPA 901.1	1.0617J ± 1.413 (2.201) C:NA T:NA	pCi/g	08/09/16 11:08	15065-10-8	
Uranium-235	EPA 901.1	0.042008U ± 0.122 (0.162) C:NA T:NA	pCi/g	08/09/16 11:08	15117-96-1	
Thorium-228	HSL-300	0.300 ± 0.162 (0.219) C:NA T:79%	pCi/g	07/28/16 08:00	14274-82-9	N2
Thorium-230	HSL-300	0.433 ± 0.175 (0.140) C:NA T:79%	pCi/g	07/28/16 08:00	14269-63-7	N2
Thorium-232	HSL-300	0.349 ± 0.149 (0.070) C:NA T:79%	pCi/g	07/28/16 08:00	7440-29-1	N2
U-233/234	HSL-300	0.489 ± 0.183 (0.160) C:NA T:91%	pCi/g	07/27/16 15:43		N2
U-235/236	HSL-300	0.009 ± 0.061 (0.084) C:NA T:91%	pCi/g	07/27/16 15:43		N2
Uranium-238	HSL-300	0.437 ± 0.162 (0.065) C:NA T:91%	pCi/g	07/27/16 15:43		N2

Sample: RB-N-160710 **Lab ID:** 30189561006 **Collected:** 07/10/16 15:00 **Received:** 07/13/16 10:40 **Matrix:** Water
PWS: **Site ID:** **Sample Type:**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	-0.130 ± 0.297 (0.699) C:NA T:99%	pCi/L	08/09/16 12:38	13982-63-3	
Radium-228	EPA 904.0	0.939 ± 0.408 (0.648) C:75% T:78%	pCi/L	08/08/16 21:19	15262-20-1	
Thorium-228	HSL-300	0.044 ± 0.057 (0.099) C:NA T:80%	pCi/L	08/01/16 19:53	14274-82-9	N2
Thorium-230	HSL-300	-0.123 ± 0.060 (0.188) C:NA T:80%	pCi/L	08/01/16 19:53	14269-63-7	N2
Thorium-232	HSL-300	0.000 ± 0.040 (0.026) C:NA T:80%	pCi/L	08/01/16 19:53	7440-29-1	N2
U-233/234	HSL-300	-0.156 ± 0.121 (0.441) C:NA T:83%	pCi/L	08/02/16 07:58		N2
U-235/236	HSL-300	0.042 ± 0.125 (0.094) C:NA T:83%	pCi/L	08/02/16 07:58		N2
Uranium-238	HSL-300	0.005 ± 0.096 (0.184) C:NA T:83%	pCi/L	08/02/16 07:58		N2

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 393
Pace Project No.: 30189561

QC Batch: 227833	Analysis Method: HSL-300
QC Batch Method: HSL-300	Analysis Description: HSL300(AS) Actinides
Associated Lab Samples: 30189561006	

METHOD BLANK: 1116097	Matrix: Water
Associated Lab Samples: 30189561006	

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Thorium-228	0.064 ± 0.105 (0.197) C:NA T:78%	pCi/L	08/01/16 19:53	N2
Thorium-230	-0.022 ± 0.040 (0.108) C:NA T:78%	pCi/L	08/01/16 19:53	N2
Thorium-232	-0.006 ± 0.040 (0.063) C:NA T:78%	pCi/L	08/01/16 19:53	N2
U-233/234	0.090 ± 0.128 (0.248) C:NA T:74%	pCi/L	08/02/16 07:58	N2
U-235/236	-0.009 ± 0.131 (0.181) C:NA T:74%	pCi/L	08/02/16 07:58	N2
Uranium-238	0.077 ± 0.101 (0.139) C:NA T:74%	pCi/L	08/02/16 07:58	N2

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 393
Pace Project No.: 30189561

QC Batch: 228578	Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1	Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30189561006	

METHOD BLANK: 1119784	Matrix: Water
Associated Lab Samples: 30189561006	

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0658 ± 0.301 (0.611) C:NA T:105%	pCi/L	08/09/16 12:03	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 393
Pace Project No.: 30189561

QC Batch: 226882 Analysis Method: HSL-300
QC Batch Method: HSL-300 Analysis Description: HSL300(AS) Actinides
Associated Lab Samples: 30189561001, 30189561002, 30189561003, 30189561004, 30189561005

METHOD BLANK: 1111723 Matrix: Solid
Associated Lab Samples: 30189561001, 30189561002, 30189561003, 30189561004, 30189561005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Thorium-228	0.023 ± 0.046 (0.097) C:NA T:82%	pCi/g	07/27/16 15:54	N2
Thorium-230	-0.038 ± 0.054 (0.177) C:NA T:82%	pCi/g	07/27/16 15:54	N2
Thorium-232	0.000 ± 0.046 (0.034) C:NA T:82%	pCi/g	07/27/16 15:54	N2
U-233/234	0.093 ± 0.095 (0.168) C:NA T:88%	pCi/g	07/27/16 15:39	N2
U-235/236	0.058 ± 0.069 (0.058) C:NA T:88%	pCi/g	07/27/16 15:39	N2
Uranium-238	-0.003 ± 0.052 (0.114) C:NA T:88%	pCi/g	07/27/16 15:39	N2

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 393
Pace Project No.: 30189561

QC Batch:	226931	Analysis Method:	EPA 901.1
QC Batch Method:	EPA 901.1	Analysis Description:	901.1 Gamma Spec Ingrowth
Associated Lab Samples:	30189561001, 30189561002, 30189561003, 30189561004, 30189561005		

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 393
Pace Project No.: 30189561

QC Batch:	227857	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	30189561006		

METHOD BLANK:	1116126	Matrix:	Water
Associated Lab Samples:	30189561006		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.487 ± 0.326 (0.613) C:78% T:86%	pCi/L	08/08/16 21:16	

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QUALIFIERS

Project: 393
Pace Project No.: 30189561

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Act - Activity
Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval).
Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)
(MDC) - Minimum Detectable Concentration
Trac - Tracer Recovery (%)
Carr - Carrier Recovery (%)
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2 The lab does not hold TNI accreditation for this parameter.

REPORT OF LABORATORY ANALYSIS

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Weston Solutions, Inc.
DateShipped: 7/12/2016
CarrierName: FedEx
AirbillNo: 7767 2667 1046

CHAIN OF CUSTODY RECORD

Case #: 393

Contact Name: Peter Lisichenko
Contact Phone: 603-512-4350

No: 2-071216-140039-0001

Cooler #: 1 of 2

Lab: PACE Analytical Services
Lab Phone: 724-850-5600

[illegible]

WO#: 30189561



Special Instructions: Gamma Spectroscopy analysis for concrete samples to include: Ra-226 (in-growth), Ra-226 (186kev peak) Ra-228, K-40, Tl-208, Bi-212, Bi-214, Pb-212, Pb-214, Ra-226, Ra-228, Th-234, U-235, Pb-210, Bi-210.

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ALL SAMPLES/ ALL ANALYSIS	<i>[Signature]</i> WESTON	7/12/16 16:00hrs	<i>[Signature]</i> Ben Marenton	7-13-16 10:40	Good

Sample Condition Upon Receipt Pittsburgh



Client Name: weston

Project # 30189561

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7767 26671046

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp N/A °C Correction Factor: _____ °C Final Temp: _____ °C

Temp should be above freezing to 6°C

Date and initials of person examining contents: BLM 7-13-16

Comments:

	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5. <u>NO TIME ON SAMPLES</u>
-Includes date/time/ID/Analysis Matrix: <u>SL/WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11.
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12.
All containers needing preservation have been checked.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13. <u>Ph 2</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed <u>BLM</u> Date/time of preservation _____
				Lot # of added preservative _____
Headspace in VOA Vials (>6mm):	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	14.
Trip Blank Present:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)